

# E-Mobility Energy Solutions

Scalable energy solutions – safe and reliable



## E-Mobility Applications

### Reliable energy supply: Robust lithium-ion batteries for mobile applications



## E-Mobility: modular and scalable – for every need

E-Mobility is no longer only the electrical propulsion of vehicles such as buses, communal vehicles made for transportation, special vehicles, motorcycles or scooters: A wide spectrum of electrically powered vehicles, fully electric, Hybrids or Mild-Hybrid solutions are entering our everyday lives more and more. Besides the propulsion of vehicles, the electric powered systems are increasingly being applied cooling systems of trucks in cities and emergency vehicles for on-board for medical devices. As well as expedition vehicles or motorhomes. Caused by a diverse range of requirements, E-mobility has one common goal: To create and ensure long-term sustainable mobility-solutions.

In this case, batteries play an important role as energy-storages. With its "Made in Germany" lithium-ion batteries aentron is implementing a versatile industry standard. The certified and tested quality of the aentron batteries ensures the necessary safety. The local battery-management-system provides an easy and quick integration in existing and new solutions. By reason of a local development department, aentron is able to create custom-made propulsion- and or internal power supply system, applicable in prototypes or in pilot series.

## E-Mobility application scenarios

### LIGHT ELECTRIC VEHICLES

Drive  
1 - 5 kWh  
12/24/48 Vdc



### MOBILE CONSTRUCTION EQUIPMENT/AGRICULTURAL MACHINERY

Drive  
2 - 10 kWh



### AUTOMOTIVE/ PROTOTYPES

Drive  
10 - 50 kWh  
200 - 400 Vdc



### EMERGENCY VEHICLES/ TRANSPORTERS

Board Net  
2 - 10 kWh  
12/24/48 Vdc



### CUSTOMIZED VEHICLES/ EXPEDITION VEHICLES

Board Net  
10 - 30 kWh  
12/24/48 Vdc





# Innovative battery technology



Dust and water resistant: IP 66



Modular and scalable configuration



Robust metal housing



Recycle- and reusable



Fast charging capable



Safety: Integrated BMS



Low and high temperature operation:  
-20°C to +60°C



Plug & play: Power at the touch of a button



360° mechanical integration



Made in Germany



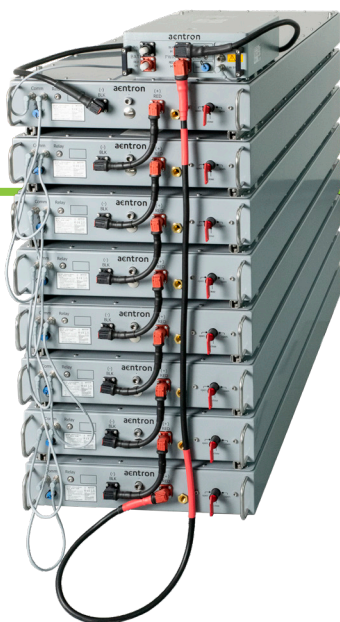
## Scalable batteries for customized energy solutions

Aentrion lithium-ion energy storage systems enable you to create modular and scalable battery solutions. We provide operating voltages from 12, 24, 48 Vdc up to 900 Vdc with capacities from 1 kWh to 1 MWh. Due to the Aentrion battery management system, all lithium-ion energy products can be combined with each

other, used as standalone or in conjunction with products from other manufacturers or customer solutions. Aentrion's certified and safe energy storage systems provide the highest level of flexibility for individual energy solutions.

### HV Energy System

1 - 900 Vdc



### 10 kWh Modul

24/48 Vdc

R-Type I<sub>max</sub> = 300 A (Standalone)



### 2 kWh Modul

12/24/48 Vdc

M-Type I<sub>max</sub> = 60 A (Standalone)

R-Type I<sub>max</sub> = 200 A (Standalone)



### 1 kWh Modul

12/24/48 Vdc

M-Type I<sub>max</sub> = 60 A (Standalone)





## Customized energy solutions

New developments for special requirements often stand in need of custom-made solutions by means of individually manufactured battery systems. Next to standardized high-performance modules, aentron also provides customer-specific battery modules, from concept, design up to the realization.

With special manufacturing and prototyping, aentron is able to fulfil the individual requirements, such as form, capacity and power. The battery management system can be customized to fit into the architectural solutions of the customer and therefore provide a quick and simple integration.

## Technical data

	1 kWh Lithium-Ionen M-Type (60 A)	2 kWh Lithium-Ionen M-Type (60 A)	2 kWh Lithium-Ionen R-Type (200 A)	10kWh Lithium-Ionen R-Type (300 A)	aentron Energy Controller (400 A)
<b>Voltage</b>	12 Vdc/24 Vdc*/48 Vdc	12 Vdc/24 Vdc/48 Vdc	12 Vdc/24 Vdc/48 Vdc	24 Vdc*/48 Vdc	1-900 Vdc
<b>Capacity</b>	70 Ah/40 Ah/20 Ah	139 Ah/81 Ah/40 Ah	139 Ah/81 Ah/40 Ah	460 Ah/203 Ah	-
<b>Energy</b>	1.006/1.023/1.023 Wh	2.046/2.046/2.046 Wh	2.004/2.046/2.046 Wh	10.230/10.230 Wh	10 kWh - 1 MWh
<b>Cell chemistry</b>	Li-NMC	Li-NMC	Li-NMC	Li-NMC	Li-NMC
<b>Temperature range</b>	-20 °C - + 60 °C / Discharge 0 °C - + 50 °C / Charge	-20 °C - + 60 °C / Discharge 0 °C - + 50 °C / Charge	-20 °C - + 60 °C / Discharge 0 °C - + 50 °C / Charge	-20 °C - + 60 °C / Discharge 0 °C - + 50 °C / Charge	Operating range: -30°C - + 100°C
<b>Dimensions</b>	40 cm x 16 cm x 9 cm	42,22 cm x 31 cm x 11,5 cm	42,22 cm x 31 cm x 11,5 cm	170 cm x 60 cm x 15,5 cm	42,22 cm x 31 cm x 11,5 cm
<b>Weight</b>	Approx. 9 kg	Approx. 22 kg	Approx. 22 kg	Approx. 130 kg	Approx. 9 kg
<b>Certifications and standards (excerpt)</b>	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66, ECE-R10 (EMC), DNV-GL Type Approved	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66, ECE-R10 (EMC), DNV-GL Type Approved	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66, ECE-R10 (EMC), DNV-GL Type Approved	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66, ECE-R10 (EMC), DNV-GL Type Approved

\* UN38.3 expected as of first half of 2021



## aentron ENERGY SOLUTIONS

aentron specialises in the development and production of energy storage devices for maritime, industrial, e-mobility and building power storage applications. aentron power solutions are state-of-the-art, scalable, robust and safe lithium-ion battery-systems – Made in Germany.

For further information please contact: [info@aentron.com](mailto:info@aentron.com).

# aentron

ENERGY  
SOLUTIONS

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